COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 10009, Richmond, Virginia 23240
Fax (804) 698-4500 TDD (804) 698-4021
www.deq.state.va.us

Robert G. Burnley
Director

(804) 698-4000
1-800-592-5482

June 11, 2003

RECEIVED

JUN 16 2003

Division Director (3AP00)

Ms. Judith M. Katz, Director
Air Protection Branch (Mail Code 3AP00)
U. S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Judy:

As the first major deliverable and milestone of the recently signed ozone Early Action Compact (EAC) for the Roanoke, Virginia area, I am pleased to submit to you a list and description of ozone precursor pollutant control measures under consideration for inclusion in future ozone Early Action Plan (EAP) for the Roanoke area. This list represents a comprehensive set of potential local control measures that have been selected for further consideration by the Ozone Early Action Plan Task Force. This Task Force has been established and empowered by the local and regional participants in the EAC process to develop the EAP for the area.

The Department of Environmental Quality has been actively involved in the process of developing this list of potential control measures, as well as in the technical support activities needed to develop the EAP for the Roanoke area. In addition, a comprehensive group of local stakeholders has been brought together to participate in this process through the Task Force and other public participation opportunities. The first semi-annual status report on the progress made in developing an EAP for the area will be submitted to you by June 30, 2003. This status report will contain additional information on the stakeholder and public participation process, as well as the progress made to date on the various technical support activities associated with this effort such as emissions inventories and air quality modeling.

As you know, the development of any successful ozone air quality improvement plan must consider all major factors contributing to the formation of ozone in a particular area, both on the local and regional level. We believe that the technical analysis for this project will indicate that the local ozone situation in Roanoke is influenced by the transport of ozone and ozone precursor pollutants from other areas. With this in mind, a list of state, regional, and national control measures has also been included in this

submittal. Although the local area is not directly implementing these measures, they will be producing significant emission reductions by 2007 and will have a positive impact on ozone air quality in the Roanoke area.

We look forward to continuing this work with you and your staff as the ozone early action process moves forward. Please contact Tom Ballou of my staff if you have any questions concerning this submittal, or about the Virginia EAP process in general.

Sincerely,

John M. Daniel, Jr.
Air Division Director

Enclosures

cc: R. Burnley, Director
R. Weeks, Deputy Director
T. Ballou, Air Data Analysis




STATE & REGIONAL/NATIONAL OZONE PRECURSOR CONTROL MEASURES THAT SUPPORT THE ROANOKE OZONE EARLY ACTION PLAN

Emission Control Measure & Description	Program Status *Implemented By:*	*Start Year*	Pollutant Controlled	Emissions Reductions
STATIONARY POINT & AREA SOURCE CONTROLS				
Regional NO_x controls to reduce the transport of ozone ("NO_x SIP Call") **Description:** Emission rate & reduction requirements for large utility and industrial boilers. To be regionally implemented in most eastern states.	Federal rule & State regulation	2004	NO_x	Up to 30,000 tons per ozone season in VA (may vary due to trading)
Stage I gasoline vapor recovery **Description:** Installation of vapor recovery controls at gasoline terminals, bulk plants, service stations, & tank trucks. Controls applied in Roanoke MSA (except Botetourt Co.).	State regulation	2000	VOC	90% from uncontrolled levels
Lower solvent paints for industrial purposes **Description:** National rule that requires lower solvent (VOC) content in architectural & industrial maintenance coatings.	Federal rule	2000	VOC	20% from uncontrolled levels
Lower solvent consumer products **Description:** National rule that requires lower solvent (VOC) content in a number of consumer products.	Federal rule	2000	VOC	10% from uncontrolled levels
Lower solvent industrial cleaning products **Description:** National rule that requires lower solvent (VOC) content in products used for various metal cleaning operations.	Federal rule	2002	VOC	10% from uncontrolled levels
Lower solvent refinishing products for motor vehicles **Description:** National rule that requires lower solvent (VOC) content in vehicle refinishing paints.	Federal rule	2002	VOC	36% from uncontrolled levels
ON-ROAD MOTOR VEHICLE CONTROLS				
National Low Emission Vehicle (NLEV) standards **Description:** National rule that	Regional agreement & state rule	1999	VOC & NO_x	70% cleaner than Tier 1 vehicles

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

requires more stringent light-duty vehicle tailpipe standards earlier than 2004				
Tier 2 motor vehicle emission standards **Description:** More stringent vehicle tailpipe standards for light duty cars, trucks, & SUVs along with lower fuel sulfur content requirements.	Federal rule	2004	VOC & NO_x	65% cleaner than NLEV vehicles
Heavy-duty diesel Truck engine standards **Description:** More stringent tailpipe standards for heavy-duty diesel truck engines along with lower fuel sulfur content requirements.	Federal rule	2004 and 2007	VOC & NO_x	40% cleaner engines in 2004 90% cleaner engines in 2007
OFF-ROAD VEHICLE & EQUIPMENT CONTROLS				
Phase 1 & 2 engine standards for small gasoline-powered engines **Description:** Emission standards for various small gasoline-powered off-road equipment engines used in lawn & garden, and light construction equipment.	Federal rule	1997 & 2002	VOC	30% in 2005
Engine standards for diesel-powered engines **Description:** Emission standards for various heavy-duty diesel-powered off-road equipment engines used for a variety of purposes such as construction & agriculture.	Federal rule	2002	NO_x	25% reduction in new engines by 2005
Engine standards for gasoline-powered marine engines **Description:** Emission standards for recreational marine vessel gasoline-powered engines.	Federal rule	1998	VOC	25% reduction in new engines by 2005
Engine standards for large gasoline-powered engines **Description:** Emission standards for various large gasoline-powered off-road equipment engines.	Federal rule	2000	VOC & NO_x	20% reduction of both pollutants by 2005
Engine standards for locomotive engines **Description:** Tiered emission standards for new or remanufactured locomotive engines implemented between 2001 & 2005.	Federal rule	2001 to 2005	VOC & NO_x	30% reduction by 2005

Roanoke Valley Area
Metropolitan Planning Organization
313 Luck Avenue, SW / PO Box 2569 / Roanoke, Virginia 24010
TEL: 540.343.4417 / FAX: 540.343.4416 / www.rvarc.org / rvarc@rvarc.org

June 9, 2003

Mr. John M. Daniel, Jr., Air Division Director
Virginia Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219

Dear Mr. Daniel:

Please find enclosed the submission of "Potential Ozone Control Strategies" for the local governments of the Roanoke Metropolitan Statistical Area (City of Roanoke, City of Salem, County of Roanoke, County of Botetourt and Town of Vinton). This material is being submitted in fulfillment of the June 16, 2003 milestone established by the Ozone Early Action Compact (EAC) signed in December 2002, and in accordance with EPA's guidance memo dated April 4, 2003. It is our understanding that you will forward this submission to the appropriate parties at the EPA by the June 16, 2003 milestone date.

The aforementioned local governments willingly entered into the EAC via their membership in the Roanoke Valley-Area Metropolitan Planning Organization (RVAMPO) as a vehicle toward regional cooperation and participation in air quality improvement. The RVAMPO is staffed by the Roanoke Valley-Alleghany Regional Commission (RVARC), which in turn established and staffs the Ozone EAP Task Force. The "Task Force", numbering over 30 participants, is a stakeholder advisory body possessing widely diverse backgrounds and views. The "Task Force" serves as the primary representative stakeholder group that advises the process in such ways as: selection of the final consultant, selection of the initial list of strategies, discussion concerning the strategies, and advice on direct public participation events and venues. Public input is also sought directly from the public at-large on a periodic basis (an example would be the May 29, 2003 public input meeting). Finally, the local governments who signed the EAC reviewed the potential ozone control strategies through such mechanisms as RVARC meetings, RVAMPO policy board meetings, and regional meetings of local city/town mayors and chairmen of the boards of supervisors.

It is with great pleasure that we submit, on behalf of the aforementioned local governments and under their direction through the RVAMPO and the RVARC, the "Potential Ozone Control Strategies" for the Roanoke MSA.

Sincerely,

W. D. "Bill" Bestpitch, Chairman,
Roanoke Valley Area Metropolitan
Planning Organization

Wayne G. Strickland, Executive Director,
Roanoke Valley-Alleghany Regional
Commission

cc: Mr. Thomas Ballou, Virginia DEQ

Ozone Early Action Plan
Potential Emission Reduction Control Measures

for

Roanoke, Virginia

Submitted by: The Roanoke Ozone Early Action Plan Task Force

June 16, 2003

INTRODUCTION

On December 16, 2002, the local jurisdictions that comprise the Roanoke Metropolitan Statistical Area (Botetourt County, Roanoke County, Roanoke City, Salem City and the Town of Vinton), along with the Virginia Department of Environmental Quality, signed and submitted an ozone Early Action Compact (EAC) to the U. S. Environmental Protection Agency. This compact was in turn signed by the EPA Region III on December 23, 2003 to complete the approval process.

EACs are agreements by the localities, the Commonwealth, and the EPA to develop Early Action Plans (EAPs) to reduce ozone precursor pollutants and improve local air quality in a proactive manner, and in a shorter time than what would occur through the traditional nonattainment area designation and planning process. These plans must include the same components that make up traditional State Implementation Plans (SIPs). This includes emissions inventories, control strategies, and an attainment demonstration based on photochemical modeling.

One of the first requirements and milestones of the EAP development process, as required by the EAC and associated EPA guidance, is the development of a list of potential local emission control measures to be considered and evaluated for inclusion in the final air quality improvement plan. These measures, when combined with controls on the state, regional, and national levels, will be designed to provide for attainment of the ozone standard in the area by 2007. The milestone date for the submission of these potential local control measures is June 16, 2003.

To develop the EAP and the associated local controls, the localities involved have jointly designated the local Metropolitan Planning Organization and Planning District Commission as the vehicle by which to accomplish this task. In turn, an Ozone Early Action Plan Task Force has been established specifically to develop the air quality plan and control measures. This Task Force has a diverse and knowledgeable membership, which will greatly aid in the development of a comprehensive plan.

POTENTIAL LOCAL CONTROL MEASURES

The Early Action Plan Task Force has identified many realistic measures that it will consider for inclusion in the area's Ozone Early Action Plan. The Task Force employed a two-step process to identify those measures. First, the Task Force itself met twice to discuss potential control measures. Second, the Task Force sponsored a public forum specifically for the purpose of obtaining recommendations from the general public.

Table 1 describes the measures that the Task Force itself identified. Table 2 describes the measures that residents identified during the public forum. It is helpful to present the results of those efforts in two tables because the Task Force as a whole has not yet had the opportunity to review and discuss the measures identified by the general public. Consequently, those measures have not been assessed against established criteria pertaining to potential air quality benefits, feasibility of implementation in the Roanoke

area and implementation by an appropriate date (no later than 2005). Nonetheless, the Task Force has included Table 2 in this submission because of the importance attached to recognizing the public's contribution to the process. Also, since the establishment of an air quality improvement program is an ongoing process which may need to be adjusted if and when the need arises, Table 1 also includes potential "maintenance" measures or "contingency" measures, (i.e., measures that could be implemented after the end of 2005 depending on monitored ozone levels in the area). In general, any selected local control measures would be implemented throughout the Roanoke Metropolitan Statistical Area.

TABLE 1: MENU OF POTENTIAL LOCAL OZONE PRECURSOR EMISSION REDUCTION STRATEGIES FOR THE ROANOKE OZONE EARLY ACTION PLAN

Strategy	Description/Example Programs/ URLs for Information	Pollutant	Source Category	Implementation Schedule
Category: Stationary Sources				
Establish Roanoke as a VOC emission control area	▸ Implement comprehensive or selective VOC emission control regulations pertaining to stationary point sources in specific CTG categories http://www.deq.state.va.us/air/regulations/air40.html	VOC	Multiple source categories	Implementation by 2005
Early implementation of NO_x SIP Call	▸ Work with Roanoke Cement to implement the NO_x SIP Call on an expedited schedule. ▸ See: *Status Report on NO_x Controls for Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines.* ▸ Executive summary of report is available http://www.nescaum.org/pdf/NOx-exec-summ.pdf	NO_x	Cement kiln	May be regulated by EPA's NO_x SIP Call. Possibility for early implementation by 2005
Reduce emissions from natural gas fired boiler	▸ Work with John W. Hancock, Jr. Inc. to further reduce NOx emissions.	NO_x		Implementation in 2005.
Require emission offsets for new sources.	▸ Require new sources to obtain emission offsets from within the Roanoke MSA or adjacent jurisdictions.	NO_x, VOC	Multiple sources	Implementation in 2005.

Strategy	Description/Example Program/ URLs for information	Pollutant Reduced	Source Category	Implementation Schedule
Category: Mobile Sources such as Light Duty Vehicles, Large Trucks, Buses, Vehicle Fleets, Railroads, Lawn and Garden Equipment, Construction Equipment				
Retrofit or repower heavy-duty diesel fleets and equipment	▸ Work with fleet owners to retrofit or repower existing diesel vehicles and equipment with control technology, convert to alternative fuels such as natural gas, or convert to hybrid electric. ▸ Example: ▸ http://www.cleanaircounts.org/resource%20package/main.html ▸ http://www.epa.gov/otaq/retrofit/ ▸ http://www.epa.gov/cleanschoolbus/ ▸ http://www.epa.gov/reg3artd/vehicletran/vehicles/diesel-exhaust.htm#owners ▸ Example: Tempe in Motion ▸ http://www.ott.doc.gov/otu/field_ops/pdfs/lng_hybrid_bus.pdf	NO_x, VOC, PM	Trucks, buses, and construction equipment	Phase-in beginning in 2005.
Purchase low-emission vehicles	▸ Roanoke Valley area municipalities, businesses, and college campuses purchase low-emission cars, & trucks. ▸ Example: Bay Area Air Quality Management District, CA low emission vehicles programs ▸ http://www.baaqmd.gov/planning/plntrns/lev.htm ▸ Also see: ▸ http://www.epa.gov/greenvehicles/ ▸ http://www.cleanaircounts.org/default.cfm?page=strategies&strategy=cleanfl_c	NO_x, VOC, PM	Cars and trucks	Phase-in beginning in 2005. Investigate Federal tax credit deduction for purchase of hybrid vehicles.
Promote route efficiency for delivery vehicles, trash collection,	▸ Encourage business to consolidate routes to improve efficiency and reduce emissions from delivery trucks. ▸ Maximize route efficiency for garbage collection, delivery vehicles, and other vehicle trips to reduce	NO_x, PM	Various vehicles	Implement by 2005.

Strategy	Description/Example Program/ URLs for Information	Pollutant Reduced	Source Category	Implementation Schedule
etc.	fuel usage.			
Limit idling	▸ Limit school bus idling and idling at or near schools to only when necessary for safety or operational concerns. ▸ See summary of anti-idling regs at: ▸ http://www.epa.gov/reg3artd/vehicletran/vehicles/us_idling_regs.pdf ▸ Also see: ▸ http://www.arb.ca.gov/toxics/sbidling/sbidling.htm#overview ▸ http://www.beeponline.org/ ▸ http://www.epa.gov/reg3artd/vehicletran/vehicles/School_bus_idling_MAR.pdf	NO_x, PM	School buses	Implement beginning with 2004 school year.
Electrify truck stops	▸ Provide incentives to drivers of refrigerated rigs and sleepers to limit idling by providing places to plug in. ▸ See: ▸ http://www.epa.gov/otaq/retrofit/idling.htm ▸ http://www.oksolar.com/truck/truck_plug_in_instead_of_idling.htm	NO_x, PM	Trucks	Phase-in beginning 2005.
Create voluntary partnerships with ground freight industry	▸ Recruit area railroads and companies that operate vehicle fleets into EPA's SmartWay Transport Partners program. ▸ (Fed Ex, UPS, Snyder, CSX already participating) ▸ http://www.epa.gov/otaq/smartway/	NO_x PM	Locomotives, trucks	Phase-in beginning in 2005.
Reflash heavy-duty diesel truck computers	Reflash computers of engines in heavy-duty diesel trucks with software designed for lower emissions.	NO_x	Trucks	Begin program by 2005.
	▸ Negotiate an agreement with the railroads			

Strategy	Description/Example Program/ URLs for information	Pollutant(s) Addressed	Source Category	Implementation Schedule
Negotiate NO_x reduction agreement with railroads	operating and traveling in the Roanoke MSA to reduce NO_x emissions. ▸ Measures may include but are not limited to: a) operating practice measures to reduce locomotive idling time; b) switch and local unit fleet management measures, including assignment of specific locomotives to the Roanoke MSA area, c) modifications to the locomotive engine and support equipment, including adjustments to engine timing, d) use of regulated fuels, and/or replace locomotives with new, cleaner locomotives. ▸ Examples: ▸ California agreement to reduce locomotive pollution ▸ http://www.calepa.ca.gov/PressRoom/Releases/1997/loco.htm ▸ Houston/Galveston Ozone Nonattainment Area Railroad Program ▸ http://www.tnrcc.state.tx.us/oprd/sips/hga_rr_agreement.pdf	NO_x	Locomotives	Begin implementation in 2005.
Voluntary measures being implemented by Norfolk Southern Railway	▸ Work with Norfolk Southern Railway to identify the voluntary NO_x reduction strategies the Railroad is implementing or plans to implement by 2005 ▸ Work with Norfolk Southern Railway and U.S. EPA to assess the availability of grant dollars to retrofit locomotives.	NO_x PM	Locomotives, related equipment, and fuel	Determine which strategies Norfolk Southern Railway will implement by 2005.
Replace lawn and garden equipment	▸ Encourage purchase and use of electric equipment through "buy back" programs. ▸ Example: Mowing Down Pollution program, San	NO_x, VOC	Lawn mowers, leaf blowers, etc.	Begin program in 2004.

Strategy	Description/Example Programs/URLs for Information	Pollutant Affected	Source Category	Implementation Schedule
	Francisco Bay area, CA • http://www.bayareamonitor.org/july99/lawn.html • Also see: • http://yosemite.epa.gov/aa/programs.nsf/d0f6289797dbf83a852564a6005e8c24/229f12d8fcf4c73b8525651c00506e10?OpenDocument		blowers, etc.	
Reduce emissions from lawn and garden equipment used by local and state governments	• Develop strategies to reduce emissions from lawn and garden equipment. • Restrict mowing on 8-hr ozone code orange and code red days.	NO_x, VOC	Lawn and garden equipment	Phase-in beginning in 2004.
Replace gasoline golf carts and turf care equipment	• Work with golf course managers to replace gasoline golf carts with electric carts. Replace high emitting sweepers, turf care equipment, and utility vehicles with low emitting equipment. • Example: California Air Resources Board advisory of promulgated regulations • http://www.arb.ca.gov/enf/advs/adv305.pdf	NO_x, VOC	Golf carts and turf care equipment	Phase-in beginning 2004.
Schedule use of heavy equipment	• Local governments schedule heavy construct NO_x ion, landscaping, and mowing activities outside of morning hour. • Schedule work around forecasted high ozone days.	NO_x, PM, VOC	Various heavy equipment	Begin implementation by 2005.
Develop a fund to defray capital expenditures for emission	• State to issue a special "air quality" license plate to generate revenue for capital expenditures required as a result of implementation of ozone reduction strategies.	N/A	N/A	Implement by 2005.

Strategy	Description/Example Programs/ URLs for information	Pollutant Reduced	Source Category	Implementation Schedule
reductions	▸ Or include a fee - County or State - (instead of special license plate) in tag purchase or renewals.			
Opacity regulations	▸ Implement opacity regulations, which are already being implemented in northern Virginia, in the Roanoke area.	PM	Diesel trucks and buses	Implement in Roanoke area by 2005. This would require legislative authority
Transportation Control Measures (TCMs)	▸ Start incident management on I-81. ▸ Replace incandescent lamps in traffic signals with light-emitting diode displays. ▸ Install 40 variable message signs. ▸ Deploy highway advisory radio system. ▸ Employ traffic responsive signal timing. ▸ Employ traffic calming and access management	NO_x, VOC, PM	Cars, trucks, and buses	
Require air quality and transportation impact studies	▸ Require major site development, e.g., major shopping center projects, to do an air quality and transportation study. This is similar to other impact studies required from developers. ▸ Require developers of new subdivision, shopping centers to conduct air quality impact studies, i.e., how many cars would the new development generate?	NO_x, PM	Various vehicles	Begin implementation by 2005.
Land-use and transportation planning	▸ Integrate land-use and transportation planning to improve air quality.	NO_x, PM	Vehicles	
Capture gasoline vapors from pumps at filling stations	▸ Implement Stage II gasoline vapor recovery program to capture gasoline vapors from pumps used by the public. ▸ See the following web sites for more information:	VOC	Fuel pumps	Being implementation by 2005.

Strategy	Description/Example Programs/ URLs for information	Pollutant Reduced	Source Category	Implementation Schedule
	▸ http://www.dep.state.pa.us/dep/deputate/airwaste/aq/Factsheets/fs_stage2.pdf ▸ http://www.deq.co.pima.az.us/air/stage2/stge2faq.html			
Require lower RVP gasoline	▸ Reduce Reid vapor pressure (RVP) in gasoline from 9.0 to 7.8 to reduce volatility evaporation during the ozone season. ▸ See the following for more information: http://www.epa.gov/otaq/volatility.htm	VOC	Gasoline	Begin implementation by 2005.
Increase cetane in diesel fuel	▸ Require local diesel fuel fleets to reduce NO_x emission by 2-3% by using Cetane diesel fuel additive. ▸ See the following document for more information: ▸ http://www.sso.org/otc/Publications/2000/001122_mod_sum_cetane.PDF	NO_x	Diesel trucks and buses	Begin implementation by 2005.
Use of bio-diesel fuel in vehicles	▸ Investigate the use of bio-diesel fuels in various on & off road vehicle fleets	VOC, NO_x	On & off road fleets	Begin implementation by 2005
Category: Commuter Programs USEPA/USDOT Commuter Choice Leadership Initiative http://www.commuterchoice.gov Commuter Choice programs and SIPs http://www.epa.gov/otaq/transp/comchoic/sipinfo.htm Business Benefits Calculator http://www.commuterchoice.gov/resosurce/calc.htm Example: Boulder (CO) Downtown Management Commission created a Commuter Choice District				
Telecommuting	▸ Offer employees option to work at home to reduce commuter trips ▸ Establish one or more telecommuting facilities to reduce commuter trips ▸ http://www.cleanaircounts.org/default.cfm?page=strategies&strategy=workpl_b	NO_x, VOC	Cars	Establish additional programs in 2004.
Compressed	▸ Offer employees option to work the same number			Establish additional programs in

Strategy	Description/Example Program/ URLs for information	Pollutant Reduced	Source Category	Implementation Schedule
workweek	of hours in fewer days (for example, forty hours in four days, or eighty hours over seven days) to reduce commuter trips.	NO_x, VOC	Cars	2004.
Ridesharing/ vanpools	• Employers provide a program for car and vanpool matching to reduce commuter trips.	NO_x, VOC	Cars	Establish additional programs in 2004.
Parking cash out	• Offer employees the cash equivalent of parking, rather than paying for parking and building employee parking lots to encourage use of ridesharing.	NO_x, VOC	Cars	Establish additional programs in 2004.
Reduce transit fares	• Employers work with regional transit authority to offer employees a monthly transit pass to encourage use of public transit. • Reduce transit fares during expected ozone exceedance days.	NO_x, VOC	Cars	Establish additional programs in 2004.
Campus commuting	• Work with campus transportation management directors to establish programs to meet staff and student commuting needs. • Example: University of North Carolina at Chapel Hill Commuter Alternatives Program • http://www.commuterchoice.gov/pdf/ph-forum102302.pdf	NO_x, VOC	Cars	Begin implementation with 2005 school year.
Category: Area & Other Sources/Strategies				
Establish Roanoke as a VOC emission control area	• Implement comprehensive or selective VOC emission control regulations pertaining to specific area source categories. http://www.deq.state.va.us/air/regulations/air40.html	VOC	Asphalt paving, surface cleaning	Implement by 2005.
Control open	• Prohibit/limit/ban open burning of waste.	NO_x, PM	Construction	Implement by 2005.

Strategy	Description/Example Programs/ URLs for information	Pollutants Reduced	Source Category	Implementation Schedule
burning	Encourage composting of leaves and brush. ▸ Example: Open burning program for Mokena, IL ▸ http://www.mokena.org/resource%20book/page23.html ▸ Example: Michigan's open burning program information and rules: ▸ http://www.michigan.gov/deq/0,1607,7-135-3310-65250--,00.html		sites, land clearing, demolition sites, roads, highways, and parking areas.	
Develop air quality best management practices (BMPs)	▸ Use BMPs to manage emissions from construction sites, construction vehicles, and wind-blown dust.	NO_x, PM	Various	Publish regulation by 2005.
Reduce urban temperature in summer	▸ Plant trees. ▸ http://www.epa.gov/region6/6xa/trees_heat.htm ▸ http://www.epa.gov/region6/6xa/trees_urban.htm ▸ http://www.treesatlanta.org/heatisland.html ▸ Use lighter color materials for paving and rooftops. ▸ http://www.coolcommunities.org/	Reduces heat that contributes to the formation of ozone	Multiple sources	Phase-in beginning in 2004.
Use green cleaning products	▸ Substitute cleaner "green" products for traditional cleaning products. Could apply to households, janitorial services, campuses, health care facilities. ▸ Example: See Procuring Green Cleaners: Minnesota's Experience ▸ http://www.cleanaircounts.org/resource%20package/main.html ▸ Also see:	VOC	Traditional cleaning products	Begin implementation as cleaning products contracts expire or supplies run out.

Strategy	Description/Example Program/ URLs for information	Pollutant Reduced	Source Category	Implementation Schedule
	▸ http://www.cleanaircounts.org/default.cfm?page=strategies&strategy=clclean_c ▸ http://www.informinc.org/cleanforhealth.php ▸ http://www.noharm.org/pesticidesCleaners/issue			
Landscape with native plants	▸ Convert from conventional landscaping to natural landscaping, which uses native plants around buildings and other structures. ▸ See Source Book on Natural Landscaping for Public Officials available at: http://www.epa.gov/glnpo/greenacres/toolkit/index.html ▸ Also see: http://www.cleanaircounts.org/resource%20package/main.html	NO_x, VOC	Lawn equipment, fertilizers and pesticides	Begin implementation in 2005.
Pave with alternative materials	▸ Pave parking lots, roads, etc. with lower VOC paving materials or non-petroleum based paving systems. (Overlap with State Rule 4-10?) ▸ http://www.cleanaircounts.org/resource%20package/main.html	VOC	Petroleum-based paving materials	Begin implementation in 2005.
Eliminate flaring of landfill methane gas	▸ Use collected methane. ▸ Example: thermal depolymerization process to generate oil and usable chemicals from many types of waste. See: http://www.discover.com/may_03/featoil.html ▸ Example: compress landfill gas to produce fuel to operate vehicles. See: http://www.epa.gov/lmop/products/cleanfuel.htm ▸ Also see information fact sheet : http://www.epa.gov/lmop/products/factsheet.htm	NO_x	Municipal solid waste landfill	Implement by 2005.
Increase	▸ Encourage local governments to increase	NO_x	Vehicles	Implement by 2005.

Strategy	Description/Example Programs/URLs for information	Pollutant Affected	Source Category	Implementation Schedule
pedestrian and bicycle infrastructure	pedestrian/bicycle infrastructure spending ▸ Establish safe bike routes with effective signs marking lanes and routes. ▸ Examples and information: ▸ http://www.bikeped.org/currentprojects.htm ▸ http://danenet.danenet.org/tlna/web-data/steering/infrastructure.html ▸ http://www.fhwa.dot.gov/environment/bikeped/Design.htm			
Implement program to provide tax credit or rebates	▸ Use tax credits or rebates as incentive for installing thermal efficient windows, insulation, etc. in older houses and businesses.	NO_x, PM	Homes and businesses	Implement program by 2005.
Category: Public Awareness Achieved with a Comprehensive Ozone Action Day Program of Ozone Forecasts and Actions to Reduce Ozone				
Appoint or hire an Ozone Action Coordinator	▸ Designate a person to be responsible for the Ozone Action Day Program.	N/A	N/A	Designate person in 2004.
Private vehicles	▸ Educate public about fuel savings from properly inflated tires, regular tune-ups, and driving speed. ▸ See: ▸ http://www.drivingtoday.com/carstuff/features/archive/fuel_economy/ ▸ http://www.fueleconomy.gov/feg/drive.shtml ▸ http://www.epa.gov/otaq/consumer.htm	NO_x, VOC	Vehicles	Establish educational program in 2004.
Employer Ozone Action Program	▸ Businesses and local government agencies establish an employee Ozone Action Program to educate and notify employees and provide	NO_x, VOC	Multiple sources	Establish programs in 2004.

Strategy	Description/Example Program/ URLs for information	Pollutant(s) Addressed	Source Category	Implementation Schedule
	incentives for participation. ▸ Example: Clean Air Coalition of Baton Rouge's Ozone Action Program ▸ http://www.deq.state.la.us/evaluation/o3act/oaptools.htm ▸ Enlist businesses with large vehicle fleets or with large numbers of commuters in an ozone awareness program.			
Enhance public awareness	▸ Implement a program to educate and motivate citizens to minimize ozone pollution. Can include educational materials, ozone forecasts, media alerts, and specific actions to be taken. ▸ Example: Voluntary Ozone Awareness and Reduction Program in Denver, CO ▸ http://www.raqc.org/ozone/ozone-pers.htm and ▸ http://www.raqc.org/ozone/ozone-act.htm ▸ Also see: ▸ http://www.epa.gov/otaq/actions.htm ▸ http://www.epa.gov/otaq/voluntary.htm ▸ http://www.epa.gov/airnow/health/ ▸ http://www.italladdsup.gov/	NO_x, VOC	Multiple sources	Establish program in 2004.
Promote knowledge-based programs at the university level	▸ Local colleges and universities establish programs to research energy efficiencies. ▸ Business and industry utilize the research to make decision concerning the purchase of furnaces and boilers.	NO_x, PM	Combustion equipment	Begin implementation by 2005.
Provide ozone awareness education as part of school	▸ Review current ozone educational program (Standard of Learning) and enhance if necessary.	NO_x, VOC	Various	Review current school program in 2004. If needed, implement enhanced program by 2005.

Strategy	Description/Example Program/ URLs for information	Pollutant Reduced	Source Category	Implementation Schedule
curriculum				
Enforce or decrease truck speed	▸ Enhanced speed enforcement during ozone action days ▸ Decrease truck speed limits on I-81 on ozone action days	NO_x, VOC	Large trucks	Begin implementation by 2005
Category: Maintenance Measures or Contingency Measures -- Application to Roanoke MSA of the Ozone Transport Commission Model VOC Rules				
OTC Portable Fuel Container Rule	▸ Specifies performance standards for portable fuel containers and/or spouts, which reduce emissions from storage, transport, and refueling activities.	VOC	Portable fuel containers	Implementation after 2005.
OTC Architectural/ Industrial Maintenance Coatings Rule	▸ Requires reformulated coatings to meet lower VOC content limits than the current Federal rule.	VOC	Architectural and industrial coatings	Implementation after 2005.
OTC Mobile Equipment Repair and Refinishing Rule	▸ Requires lower VOC contents for paints and use of improved transfer efficiency application and cleaning equipment.	VOC	Paints	Implementation after 2005.
OTC Solvent Cleaning Operations Rule	▸ Establishes hardware and operating requirements for vapor cleaning machines used to clean metal parts. Volatility restrictions for cold cleaning solvents.	VOC	Solvents	Implementation after 2005.

Table 2. EMISSION REDUCTION STRATEGIES RECOMMENDED OR NOTED BY THE PUBLIC AT THE MAY 29, 2003 FORUM

Comment 1

1. DMV is planning to install weigh-in motion sensors in both lane directions on Route I-81 Troutville truck weigh stations. (This would positively impact quality of air by reduction in stop and go truck traffic.)
2. VDOT currently has Safety Service Patrol program that reduces time of congestion on Route I-81 by assisting disabled vehicles that create slow traffic
3. Park & Ride lots and Transit Service Program to them should be considered

Comment 2

1. Trap methane at diesel landfill at Explore and use it to power local government vehicles
2. Establish maximum paved parking lot size - anything beyond that has to be permeable
3. Improve rail in I-81 corridor instead of widening I-81
4. Evaluate having California-type emission controls for vehicles, including trucks and SUVs
5. Complete Roanoke River, Lick Run, Tinker, Mason Creek Greenway to provide alternative transportation options
6. Provide bike accommodations on all arterials
7. Reduce paved width of subdivision roads
8. Prohibit cutting of trees >24" diameter - permit only. Encourage retention rather than replanting of developed land.
9. Require shading of all parking lots. Encourage green roofs, white roofs, and concrete parking lots to reduce heat islands
10. Replant large trees at the edge of Roanoke River to shade our natural air conditioner
11. Prohibit parking at schools for students younger than seniors to reduce driving and parking lot size
12. Encourage vehicles powered by alternative sources - hydrogen, used cooking oil, electricity, etc.
13. Shade highways

Comment 3

1. Shared public/pupil transit
2. Work on school location guidelines to build/allow schools closer to neighborhoods
3. Reduce number of parking lots in high schools
4. Alternative transportation choices should be included in plan. Examples: circumferential "trolley" bus route around city - Tanglewood, downtown, Valley View, Salem, 419
5. Light rail between Botetourt, Roanoke, Salem, Christiansburg, Blacksburg
6. Bicycle facilities through restripping, repaving projects, paved shoulders
7. Traffic calming
8. Implement Clement's directives pertaining to additional sources of funding for bicycle projects.

9. on time; on target good when bikes included in project, bad if not presented for public meeting
10. Need to work regionally on restripping projects and paved shoulders
11. Add greenways
12. Implement safe routes to school
13. 30% of traffic and emissions in morning are due to parents taking children to school

Comment 4

1. Most of the measures pale next to not building road that encourage urban sprawl, doing traffic calming to make urban living more attractive and trying to service the trucking need of the trucks serving our economy, without becoming attractive to trucking to and from regions far away.
2. Do not build I-73/fix 200.
3. Start to build a modern rail infrastructure. It is the way of the future; we should start now.
4. Minimize the widening of I-81.
5. Slow traffic down and make living in Roanoke more fun and urban sprawl less attractive.
6. Get serious about bike lanes for many aspects of our physical and mental health.
7. Trucks make lots of pollution. Trains make very little. Therefore, do not build I-73 which will attract more trucks through this Valley. Take rail seriously! Nothing can be planned for I-81 until you provide rail service first and see how much truck traffic can be diverted. Include the "rail-ferry" concept. We need to improve air quality therefore we cannot build I-73 and I-81 improvements have to be accomplished by thinking of improving rails the same way we have improved highways for 50 years.

Comment 5

1. Do not build I-73
2. Use rail
3. Do not widen I-81

Comment 6

1. Many good suggestions in the plan. But obviously much education of the public needs to be done - the turnout for the Public Input Meeting was very disappointing.
2. Particulate emissions from Roanoke Electric Steel need to be addressed.
3. Greenway links between neighborhoods, parks, schools, shopping areas, etc., need to be encouraged so that means of transportation other than cars can be used. Then people need to be encouraged to use the greenways.

Comment 7

1. Suggest an additional monitor/location close to I-81
2. The increased truck traffic o I-81, especially heavy truck (diesel) will more than offset improved emissions on new truck tractor engines. Truck traffic will increase even more if I-81 is six or eight lanes wide. Look at alternatives to more truck traffic.